

CLAIMS

I claim:

1. A color wheel comprising at least one segment that occupies, for a given radius, a percentage of the circumference of the wheel at that radius, which percentage varies continuously or in multiple steps from a radially inward point to a radially outer point on the wheel.
2. The color wheel of claim 1, wherein the color wheel further comprises colored segments which comprise one red, one green and one blue segment.
3. The color wheel of claim 2, wherein the at least one segment is a white segment.
4. The color wheel of claim 2, wherein the colored segments further comprise a yellow, cyan and/or magenta segment.
5. The color wheel of claim 1, wherein the at least one segment is a clear glass or polymer.
6. The color wheel of claim 1, wherein the at least one segment comprises a transparent or translucent material or no material within that segment of the wheel.
7. The color wheel of claim 1, wherein the at least one segment does not extend completely across the width of the color wheel in the radial direction of the wheel.
8. The color wheel of claim 1, wherein the at least one segment provides higher brightness for each frame when the wheel is rotated in a projection system.
9. The color wheel of claim 1, wherein the at least one segment provides increased color saturation for each frame when the wheel is rotated in a projection system.

10. The color wheel of claim 1, further comprising at least three different filter segments in addition to the at least one segment.
11. The color wheel of claim 10, wherein the at least three different filter segments occupy, for a given radius, a percentage of the circumference of the wheel at that radius, which percentage remains the same from a radially inward point to a radially outer point on the wheel.
12. The color wheel of claim 10, wherein light passing through the at least three different filter segments is centered around a different wavelength for each segment.
13. The color wheel of claim 10, wherein the at least one segment is at least three segments having a different luminosity and color saturation than an adjacent one of said at least three different filter segments.
14. The color wheel of claim 13, wherein the at least three segments have a higher luminosity than the at last three different filter segments.
15. The color wheel of claim 14, wherein the at least three segments are interspersed between the at least three different filter segments.
16. The color wheel of claim 15, wherein the at least three segments are white or yellow segments.
17. The color wheel of claim 1, wherein the percentage increases from a radial inward point to a radial outer point.
18. The color wheel of claim 17, wherein the percentage increases in a stepwise manner from a radially outer point to a radially inward point.
19. The color wheel of claim 17, wherein the percentage increases continuously for

the width of the at least one segment in the radial direction of the wheel.

20. A color wheel having a plurality of filter segments adjacent each other around the circumference of the wheel, wherein at least one of the transitions from one filter segment to the next is curved or stepped.
21. The color wheel of claim 20, wherein the plurality of filter segments comprise at least three color segments and at least one white segment.
22. The color wheel of claim 21, wherein the at least three color segments comprise red, green and blue.
23. The color wheel of claim 20, wherein the plurality of filter segments comprise at least three color segments and at least one segment for providing white, yellow or orange light.
24. The color wheel of claim 23, wherein one or more of the filter segments comprises an edge defining a transition to an adjacent filter segment that does not lie on a radius of the wheel.
25. The color wheel of claim 24, wherein the at least one segment for providing white, yellow or orange light comprises edges facing adjacent filter segments that are curved or stepped.
26. The color wheel of claim 25, wherein the at least one segment for providing white, yellow or orange light comprises at least three white segments disposed between color segments.
27. The color wheel of claim 21, wherein one of the at least three color segments is not disposed adjacent the at least one white segment and has edges abutting adjacent filter segments that do not lie along the radius of the color wheel.



28. A color wheel having a plurality of filter segments adjacent each other around the circumference of the wheel, wherein at least one of the segments is a higher brightness segment than the others and has sides facing adjacent filter segments that do not lie on the radius of the wheel.
29. The color wheel of claim 28, wherein the plurality of filter segments comprise at least three color segments and the at least one higher brightness segment is a white segment.
30. The color wheel of claim 29, wherein the at least three color segments comprise red, green and blue.
31. The color wheel of claim 28, wherein the plurality of filter segments comprise at least three color segments and the at least one higher brightness segment is one or more segments for providing white, yellow or orange light.
32. The color wheel of claim 31, wherein one or more of the color segments comprises an edge defining a transition to an adjacent filter segment that does not lie on a radius of the wheel.
33. The color wheel of claim 32, wherein the at least one segment for providing white, yellow or orange light comprises edges facing adjacent filter segments that are curved or stepped.
34. The color wheel of claim 33, wherein the at least one segment for providing white, yellow or orange light comprises at least three white segments disposed between color segments.
35. The color wheel of claim 29, wherein one of the at least three color segments is not disposed adjacent the at least one white segment and has edges abutting adjacent filter segments that do not lie along the radius of the color wheel.

36. A projection system comprising:

- a light source;
- the color wheel of claim 1;
- a spatial light modulator; and
- projection optics.

37. The projection system of claim 36, wherein the color wheel further comprises colored segments which comprise one red, one green and one blue segment.

38. The projection system of claim 37, wherein the at least one segment is a white segment.

39. The projection system of claim 37, wherein the colored segments further comprise a yellow, cyan and/or magenta segment.

40. The projection system of claim 36, wherein the at least one segment is a clear glass or polymer.

41. The projection system of claim 36, wherein the at least one segment comprises a transparent or translucent material or no material within that segment of the wheel.

42. The projection system of claim 36, wherein the at least one segment does not extend completely across the width of the color wheel in the radial direction of the wheel.

43. The projection system of claim 36, wherein the at least one segment provides higher brightness for each frame when the wheel is rotated in a projection system.

44. The projection system of claim 36, wherein the at least one segment provides increased color saturation for each frame when the wheel is rotated in a projection system.

45. The projection system of claim 36, further comprising at least three different filter segments in addition to the at least one segment.
46. The projection system of claim 45, wherein the at least three different filter segments occupy, for a given radius, a percentage of the circumference of the wheel at that radius, which percentage remains the same from a radially inward point to a radially outer point on the wheel.
47. The projection system of claim 45, wherein light passing through the at least three different filter segments is centered around a different wavelength for each segment.
48. The projection system of claim 45, wherein the at least one segment is at least three segments having a different luminosity and color saturation than an adjacent one of said at least three different filter segments.
49. The projection system of claim 48, wherein the at least three segments have a higher luminosity than the at last three different filter segments.
50. The projection system of claim 49, wherein the at least three segments are interspersed between the at least three different filter segments.
51. The projection system of claim 50, wherein the at least three segments are white or yellow segments.
52. The projection system of claim 36, wherein the percentage increases from a radial inward point to a radial outer point.
53. The projection system of claim 52, wherein the percentage increases in a stepwise manner from a radially outer point to a radially inward point.

54. The projection system of claim 52, wherein the percentage increases continuously for the width of the at least one segment in the radial direction of the wheel.
55. The projection system of claim 36, wherein the spatial light modulator is a micromirror array.
56. The projection system of claim 36, wherein the light source is a white light source.
57. The projection system of claim 56, wherein the white light source is a halogen lamp, a xenon arc lamp, a UHP arc lamp or a white light laser.
58. The projection system of claim 36, wherein the projection system further comprises a target.
59. The projection system of claim 58, wherein the projection system is a front or rear screen television or computer monitor.
60. The projection system of claim 36, further comprising a housing and a knob or button for mechanically moving the color wheel so as to increase or decrease brightness.